

East Fork Scott Project Proposal

*Salmon/Scott River Ranger District
Klamath National Forest*

Background

The Salmon/Scott River Ranger District of the Klamath National Forest proposes the East Fork Scott Project to improve forest health and resilience in early and mid to late seral habitat, enhance meadow and oak woodland habitat for sensitive plants and large game species; reduce sediment input from roads and abandoned mines; protect and enhance riparian habitat and stream shade; and provide for firefighter and public safety. This proposal treats 11,415 acres within the 31,572 acre project boundary.

The project is located within the East Fork Scott Headwaters, Houston Creek, Rail Creek, Kangaroo-Polar Bear, and East Fork Scott/Grouse Creek 7th Field Watersheds. The project is about 10 miles northeast of Callahan, California in Siskiyou County in Township 40 North, Range 6 West, Sections 5-8, and 18; T40N, R7W, Sec. 1-5, 8-23, 27-33; T40N, R8W, Sec. 4, 10, 12-15, 23, 24; T41N, R6W, Sec. 7, 18-20, 29-31; T41N, R7W, Sec. 1, 2, 11-14, 22-27, 32-36, Central Meridian. Vicinity and project maps are enclosed. Elevation ranges from 3,600 to 7,200 feet.

Management Direction

The 1995 Klamath National Forest Land and Resource Management Plan (Forest Plan, as amended) provides forest-wide and management area (MA) direction for project-level planning and incorporates Standards and Guidelines from the Northwest Forest Plan.

Table 1: Management Areas (MAs) found within the project area

Management Area	Pages in Forest Plan*	Acres within Project Area (% of project area)	Goals Pertinent to This Proposal
Partial Retention Visual Quality Objective (Management Area 15)	4-126 to 4-127	7343 (23%)	Provide an attractive, forested landscape where management activities remain visually subordinate to the character of the landscape. Maintain stand health as well as resilience to wildland fire, insect, disease, and other damage (Forest Plan 4-126).
Special Habitat, Late Successional Reserve (Management Area 5) (Scott Mountain LSR Unit RC340)	4-82 to 4-89	3736 (12%)	Protect and enhance conditions of late-successional and "old growth" forest ecosystems (Forest Plan 4-83).

Riparian Reserve (Management Area 10)	4-106 to 4-114	2777 (9%)	Maintain and restore riparian-dependent structures and functions of intermittent streams (Forest Plan 4-106).
Special Management- Special Interest Areas (Management Area 7)	4-97 to 4-100	1903 (6%)	Manage for ecological processes and the unique features for which the area was designated (Forest Plan 4-98).
General Forest (Management Area 17)	4-131 to 4-132	1364 (4%)	Emulate ecological processes and stand and landscape patterns where possible. Maintain stand health, as well as resilience to wildland fire, insect, disease, and other damage (Forest Plan 4-131).
Retention Visual Quality Objective (Management Area 11)	4-115 to 4-116	504 (2%)	Provide a level of attractive, forested scenery by maintaining the areas in a natural or natural-appearing condition. Maintain stand health, as well as resilience to wildland fire, insect, disease, and other damage. (Forest Plan 4-115).
Private Lands Within Project Area	N/A	13,698 (43%)	

About 14,104 acres or 45% of the project area is within the wildland-urban interface (WUI). The wildland urban interface is divided into three concentric zones: (1) a home ignition zone of 100 feet around structures; (2) a defense zone of one-quarter mile around human developments; and (3) a threat zone of 1.5 miles.

Table 2: Wildland Urban Interface within the Project Area

Wildland Urban Interface Zone	Description	Ownership (acres)		Total Area (acres)
		Private	Federal	
Home Ignition Zone	100 ft. from structures	26	2	28
Defense Zone	¼ mile from structures	711	410	1,121
Threat Zone	1.5 miles from structures	5,732	7,223	12,955

The interdisciplinary team (IDT) designed the project to be consistent with all applicable law, regulation, policy, and direction.

Purpose and Need for Action

The purpose and need for this project is to:

- Improve forest health and resilience in early and mid to late seral habitat, enhance meadow and oak woodland habitat for sensitive plants and large game species; reduce sediment input from roads and abandoned mines; protect and enhance riparian habitat and stream shade; and provide for firefighter and public safety.

Existing Condition

Forest health and resilience

Natural and planted forested areas are too dense, particularly those in the early and mid-seral age classes. Natural fire disturbance would have maintained these areas in more open conditions by removing small trees and suppressing brush. Currently there are many small diameter trees competing for light and limited water resources, creating a closed canopy and declining diameter growth. Resilience to fire, insects, disease, and other damage has been lessened due to the inter-tree competition reducing health and vigor. Increased tree mortality is expected, building up fuels and increasing potential for high severity fire.

Dry meadow and wet meadow and fen communities

Fire exclusion has resulted in increased young conifer encroachment within wet and dry meadow habitats. This has reduced habitat quality for rare, endemic plant species such as silky mousetail (*Ivesia pickeringii*), and wildlife such as black-tailed deer and Roosevelt elk. Young conifers historically have been excluded from these areas by periodic, low severity fire disturbance. Some wet meadows have excessive down-cutting of streams or interruption of subsurface flow due to human activities such as culverted road crossings near sensitive wet meadows and unauthorized Off Highway Vehicle use in sensitive wet meadows.

Black-tailed deer and Roosevelt elk habitat

The project area provides important habitat for deer and elk populations. Forage availability is currently moderate to low. This foraging habitat is degraded and becoming limited due to the exclusion of low intensity fire. This is of particular note in the decadent winter range of the watershed where absence of fire disturbance has promoted dense, mature brush growth. This limits animal access through otherwise open forested areas such as oak woodlands and young conifer stands. Small conifer encroachment in oak woodland and meadow areas similarly is reducing access and suppressing forage species.

Nesting, roosting, and foraging habitats for northern spotted owl (NSO)

The project area has limited nesting, roosting, and foraging habitats for the northern spotted owl. This is due to past even-aged harvesting methods, historic wildfires, and large areas of limited site productivity due to shallow and infertile soils. Two known NSO home ranges have limited habitat available with moderate to low quality for late seral conditions. The existing late seral habitat is in jeopardy of loss to wildfire due to overstocked stands and high fuel loadings.

Abandoned minelands

Several abandoned mines are located within the East Fork Scott River watershed. These sites present a variety of risks to public safety and water quality ranging from open tunnels and vertical mine shafts, waste rock disposal sites that need to be tested for environmental contaminants, debris left on site, and soil erosion potentially resulting in sediment entering waterways.

Road sediment sources to waterways

Chronic and catastrophic human-caused sediment input to project area watercourses exists due to high road density and poor condition of roads within the project area. Stream crossing structures are undersized. Road stream crossings frequently exhibit diversion potential. Ditch relief culverts are undersized and over-spaced. Overall, project area road systems are currently unable to remain stable under 100-year storm events and are the primary management related impact that is contributing to the current water quality impairment in the East Fork Scott.

Health and function of riparian reserves

Riparian reserves in some areas do not provide adequate stream shade due to human activities such as firewood cutting and past mining disturbance. Reduced diversity of the riparian plant community, particularly the absence of an overstory of large conifers, is having the greatest effect on shade. This has contributed to temperature of some waterways exceeding standards and reducing the quality of aquatic habitat.

Aquatic habitat for aquatic species

Multiple stream crossing structures within the project area are barriers to aquatic organism passage, especially for anadromous and resident fish and amphibians. Instream large woody debris loading is insufficient in many locations, impacting riparian habitat function. Natural and human-caused disturbances have altered riparian vegetation, reducing retention and input of large woody debris to streams.

Access and Administration of National Forest System lands

Forest Transportation System roads within the project area do not meet the level of service specified in the road management objectives due to deferred maintenance and the effect of sub-standard road design. Over-steep road segments located within riparian reserves pose chronic risk of sediment input to waterways. The current high road density cannot be maintained to standards and is causing resource damage. Dead, dying, or weakened trees along major access routes to campgrounds and trailheads pose a safety hazard to the public.

Public and firefighter wildland fire safety

Due to departure from historic fire regime, areas within the project area have high ladder fuels and surface fuel accumulations that increase crown fire potential. This is of particular concern on public lands adjacent to private residences and along access routes to public campgrounds, trailheads, and dispersed camps where high potential flame lengths threaten public and firefighter safety. As a result, there is low potential for management of natural ignitions for resource benefits within the project area.

Desired Condition

Forest health and resilience

Tree density is managed to reduce inter-tree competition and promote health of individual trees. Openings in the forest canopy created by vegetation management will not be readily evident. A diversity of tree sizes and age classes limits the spread and occurrence of forest insects and diseases. Open stand conditions and low fuel loadings reduce potential for crown fire. Forested ecosystems function in a healthy manner and are resilient to changes, including repeated, low intensity fires.

Dry meadow, wet meadow, and fen communities

Self-sustaining populations of rare endemic plant species are maintained. Conifer density is managed, maintaining an open woodland meadow margin with few large scattered conifers within the meadow interior. Streams within wet meadows are stabilized and subsurface flow is not impacted by human activities.

Black-tailed deer and Roosevelt elk habitat

Forage, cover, and reproductive habitats for deer and elk are improved due to a mosaic of conditions. Density and age class of brush and chaparral habitat is diversified. Within young conifer stands, hardwoods and early seral stage species are promoted and maintained through management. Oak woodland habitat is open with reduced conifer encroachment. Springs, grasses and leafy plants within meadows are readily available for foraging due to decreased competition from small conifers.

Nesting, roosting, and foraging habitats for northern spotted owl (NSO)

Vegetation and older seral stage diversity is increased across the landscape, particularly on north slopes, high elevations, and cool moist areas. A mosaic of conditions provides increased habitat quality for late seral stage species. Hardwoods within nesting, roosting and foraging habitat provide for vegetative diversity and habitat for prey species. Fuel loading and conditions are maintained to lower risk of stand-replacing wildfire. Early seral stands within late successional reserve and critical habitat are managed for growth and diversity. Management activities do not degrade occupied northern spotted owl habitat.

Abandoned minelands

Environmental and safety hazards of abandoned mine sites have been mitigated. Sites have been reclaimed to near natural conditions with low risk of remaining mining features serving as a potential sediment source to waterways.

Road sediment sources to waterways

Potential road sediment sources are managed so that aquatic ecosystems experience the timing, volume, rate, and character of sediment input to which they have evolved. Road crossings are stable, adjacent hillslopes provide areas to catch sediment, and fine sediment from management activities is not adversely affecting stream channels. Drainage structures of the Forest transportation system are designed and upgraded to accommodate 100-year stormflow events without failing. Road stream crossings are designed with grade reversals that eliminate the potential for stream diversion. Road surfaces are drained as to not cause gullyng or rilling.

Health and function of riparian reserves

An overstory of conifers provides shade and thermal cover; an intermediate layer of deciduous vegetation provides thermal buffering, nutrient cycling, and bank stability. Trees are of all ages and sizes, with some large mature, decadent conifers providing large woody debris to streams through broken tops or large limbs.

Aquatic habitat for aquatic species

Drainage network connections provide physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species. Large woody debris within streams provides benefits such as habitat structure and complexity for aquatic organisms, sediment retention, and channel stability.

Access and Administration of National Forest System lands

There is a network of system and temporary roads needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands per 36 CFR 212.5(b)(1). Water sources are developed and maintained for road maintenance and wildland fire management. System road risks to resources are minimized or decreased. System road benefits to resources are improved or maintained.

Public and firefighter wildland fire safety

Management promotes open forest conditions where natural ignitions can be safely managed for resource benefits. Access routes and areas of public land next to residences are safe for firefighters to be engaged in fire management with minimal disruption of public access during fires.

Existing and Desired Condition

The table below provides a summary of the existing and desired conditions, which were considered during development of the purpose and need and proposed action.

Table 3: Summary of Existing and Desired Conditions

Resource Area or Statement of Need	Existing Conditions	Desired Conditions	Proposed Activities	Measures
Improve forest health and resilience (Forestwide S&G 6-15, 21-58)	High density of trees makes forested areas susceptible to increased mortality from insect, disease, and drought conditions. Increased mortality will result in buildup of fuels increasing the risk of severe fire.	Diversity of tree size and spacing reduces susceptibility to forest insects and diseases. Forested ecosystems function in a healthy manner and can be resilient to changes, including repeated fires. (Forest Plan p. 4-8, 4-14).	Mechanical thinning, mastication, or manual thinning to reduce stand density. Piling of cut material in place, or skidding or cable yarding to a landing to concentrate fuels. Disposal may be by burning, chipping, or by sale as commercial wood products.	Stand Density Index Diameter Increase over 30 years
Enhance dry meadow and wet meadow and fen plant communities (Forestwide S&G 8-42, ACS)	Conifer encroachment is impacting grassy and herbaceous plant cover and changing potential fire behavior within meadows and fens. Some wet meadows are being unnaturally drained by road culverts set too low.	Conifer encroachment is reduced. Wet meadows have few signs of gully; the water table is near the meadow surface with streams meandering through the meadows (Forest Plan p. 4-107).	Manual thinning of conifers with resulting activity fuels piled for later burning or scattered to reduce fuel concentrations. Manual installation of erosion control structures in wet meadows. Re-construction of system road crossings mindful of natural drainage.	<ul style="list-style-type: none"> Conifer cover within historic meadow boundaries Wet meadow stream entrenchment Wet meadow bare soil cover Wet meadow water table rise
Enhance and protect nesting, roosting and foraging habitats for Northern Spotted Owl (NSO) (Forestwide S&G 8-11).	Lack of suitable habitat is limiting potential increase in population of NSO within the project area. Existing habitat is at risk of loss due to high stand density and fuel loadings.	Areas of multi-layered forests with high quality habitat characteristics and attributes are common on north slopes, high elevations, and cool moist areas. (Forest Plan p. 4-83)	When managing for forest health, design and implement silvicultural prescriptions to thin from below in younger stands to accelerate development of late successional conditions; thin older stands to reduce risk of loss due to fire or insects.	<ul style="list-style-type: none"> Percent of suitable landscape positions meeting desired habitat characteristics. Acres of non-habitat or dispersal habitat enhanced to meet foraging habitat requirements. Acres of nesting, roosting and foraging habitat treated to reduce risk of loss to fire or insects and disease.
Promote habitat for black-tailed deer and Roosevelt elk (Forestwide S&G 8-47, 8-52)	Deer and elk habitat quality within the project area is reduced by conifer encroachment and competition in otherwise hardwood dominated areas	Health and vigor of browse species and mast-producing oaks are maintained. Openings are present with adjacent cover (Forest Plan p. 4-33)	Design and implement silvicultural prescriptions to promote hardwood species when managing for forest health. Mastication or manual thinning of brush and conifer	<ul style="list-style-type: none"> Acres of winter range and oak woodland habitat improved by implementing proposed treatments. Acres of early seral habitat enhanced by implementing proposed treatments.

Resource Area or Statement of Need	Existing Conditions	Desired Conditions	Proposed Activities	Measures
			encroachment from hardwood stands and meadows.	
Mitigate abandoned mine hazards (Forestwide S&G 1-4).	Past mining activities pose hazards to environmental health and public safety.	Abandoned mine sites have been evaluated and treated to mitigate environmental and safety hazards (Forest Plan p. 4-18).	Reclaim abandoned mine lands by re-contouring, closing open shafts, and removing dams or other potential sediment sources to waterways.	<ul style="list-style-type: none"> • Number of open mine shafts or pits gated or blocked for safety • Amount of sediment from mining activities potentially at risk of entering waterways.
Reduce road sediment sources to waterways	Stream crossing structures and inboard ditch relief culverts are undersized, overspaced and inadequate to pass 100-year stormflow events. Road surfaces not drained and are actively gullyng.	Road crossings within riparian areas are stable and designed for 100-year flood flow capacity (Forest Plan p. 4-107, 4-25).	Replace stream crossing structures, add or redesign drainage structures for roads to decrease potential sediment delivery to waterways. Re-design road surfaces to facilitate more natural drainage.	<ul style="list-style-type: none"> • Number of legacy sediment sites treated. • Quantity of sediment saved.
Improve health and function of riparian reserves (RRs)	Riparian reserves do not provide adequate stream shade due to human activities such as firewood cutting and past mining. This has contributed to temperature of waterways exceeding the threshold of concern. Additionally, many project area RR's do not exhibit desired condition for Large Woody Debris (LWD).	Multi-layered vegetation, vegetation canopy is present in forested RR's except where soils are shallow or unproductive. Water quality in streams meets or exceeds State water quality requirements. An appropriate level of large wood is desirable to support biotic and abiotic functions. (Forest Plan p. 4-106, 4-107, 4-143).	Design and implement silvicultural prescriptions to maintain or enhance stream shade and LWD when managing for forest health within Riparian Reserves. Implement stand-alone LWD prescriptions in areas outside of silviculture units, as applicable.	Compliance with 9 Aquatic Conservation Strategy Objectives; particularly LWD occurrence and site potential shade.
Improve aquatic habitat for anadromous and resident fish species	Road stream crossings structures block aquatic organism passage. Large woody debris important for habitat is lacking in certain stream segments.	Large pieces of wood provide cover, substrate, and habitat structure. Drainage network connections provide physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic- and riparian-dependent species (Forest Plan p. 4-107, 4-6).	Add large woody debris to streams by directionally felling or mechanically placing trees into streams. Replace or remove road stream crossing structures as appropriate to allow aquatic organism passage.	<ul style="list-style-type: none"> • Large woody debris stocking in streams • Miles of stream open to aquatic organism passage.

Resource Area or Statement of Need	Existing Conditions	Desired Conditions	Proposed Activities	Measures
Enable access for administration, utilization, and protection of National Forest System lands	The network of existing forest transportation system roads does not provide sufficient access to administer or implement management activities. Some existing system roads have deteriorated below the level of service defined in their road management objective. Other road segments are poorly located and pose a risk of sediment entering waterways.	A network of system and temporary roads needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands per 36 CFR 212.5(b)(1)	Conduct a travel analysis to identify needed or unnecessary system roads. Conduct road maintenance and reconstruction needed to meet road management objectives. Relocate problem road segments. Identify and build temporary road needed for short-term access, close and hydrologically stabilize short-term access routes upon project completion.	<ul style="list-style-type: none"> • Road Density • Miles of Temporary Road • Miles of System Road
Enhance public and firefighter wildland fire safety (Forestwide S&G 22-3)	Due to departure from historic fire regimes, areas adjacent to residences on private land, emergency access routes, and routes to campgrounds and trailheads have high fuel loadings that will result in unsafe flame lengths in the event of a wildland fire.	Fuel loadings are reduced such that high intensity fire is less likely and natural ignitions may be managed for resource benefits (Forest Plan p. 4-54).	Manually cut small trees and brush on public land adjacent to residences and along access routes. Manually pile the cut material for disposal by burning or chipping. Identify and mitigate hazard trees along roads. Re-introduce low intensity surface fire under controlled conditions.	<ul style="list-style-type: none"> • Flame length in wildland urban interface zones and along access routes • Crown Fire Potential

Proposed Action

The proposed action was designed to meet the purpose and need of the project. The proposed action would treat 11,415 acres within the 31,572 -acre project boundary. Acres by treatment type are described below and do not account for the overlap in treatment types. Treatment acreages are approximate at this point and may be adjusted and refined following scoping. Project design features will be applied to all action alternatives to minimize negative environmental effects. These features will be developed in conjunction with alternative development and analysis and will be included in the East Fork Scott Environmental Assessment.

This project includes the following 8 types of treatments: (1) Forest Health & Resilience, (2) Meadow Enhancement, (3) Oak Woodland Enhancement, (4) Abandoned Minelands Reclamation, (5) Road Sediment Source Reduction, (6) Large Woody Debris in Streams, (7) Travel System Access, and Administration, and (8) Hazard Tree and Fuel Reduction. A map of the project area is enclosed, detailed maps of the proposed treatments are available on the project webpage: <https://www.fs.usda.gov/project/?project=50878>.

Table 4: Summary of Treatment, Need for Treatment, and Acres of Treatment

Treatment	Need	Acres
Forest Health & Resilience		
<i>Mid-Late Seral</i>	Improve forest health & resilience Enhance public and firefighter wildfire safety Enhance and protect nesting, roosting, and foraging habitats for Northern Spotted Owl Improve health and function of riparian reserves Improve habitat for aquatic species	<i>Mid-Late Seral: 2,571 acres</i>
<i>Early Seral</i>	Improve forest health & resilience Promote habitat for black-tailed deer and Roosevelt elk Improve health and function of riparian reserves	<i>Early Seral: 1,499 acres</i>
Meadow Enhancement	Promote meadow plant Communities Promote habitat for Black tailed deer and Elk Promote natural hydrologic function	<i>Wet meadow: 456 acres</i> <i>Dry meadow: 1,954 acres</i>
Oak Woodland Enhancement	Improve forest health & resilience Promote habitat for black-tailed deer and Roosevelt elk	<i>Oak Woodland: 338 acres</i>
Abandoned Mineland Reclamation	Mitigate abandoned mine hazards Improve aquatic habitat for anadromous and resident fish species	Sites will be inventoried and prioritized as surveys determine existing conditions and needs

Road Sediment Source Reduction	<p>Reduce road sediment sources to waterways from the nearly 600 existing legacy sediment sites identified as posing risk of sediment discharge</p> <p>Improve habitat for aquatic species</p>	<p>A legacy sediment site treatment plan is being drafted based on field inventory data. It will be finalized upon enrollment under the North Coast Regional Water Quality Control Board Waiver requirements to be in compliance with the Clean Water Act (NCRWQCB 2015).</p>
Large Woody Debris in Streams	<p>Improve habitat for aquatic species</p>	<p>Thinning for large woody debris placement in streams: <i>114 acres</i></p>
Access and Administration	<p>Enable access for administration, utilization, and protection of Forest System lands</p> <p>Minimize damage to resources from system roads.</p>	<p>See Table 5 below and following discussion.</p>
Hazard Tree and Fuel Reduction	<p>Enhance public and firefighter safety</p>	<p><i>Access routes: 1,082 acres</i></p> <p><i>Fire Re-introduction: 3,345 acres</i></p> <p><i>Public land near residences: 56 acres</i></p>

Forest Health & Resilience

Mid & Late Seral

Mid- and late-seral conifer forest stands would be thinned on a variable spacing to reduce inter-tree competition, promote forest health, and increase resilience to fire, insect and disease. Silvicultural prescriptions for mid- and late seral stands would be designed to enhance hardwoods and promote or protect northern spotted owl nesting, roosting, and foraging habitat where it exists in LSR or critical habitat. Thinned trees greater than 10 inches DBH would be skidded by mechanical equipment or winched by cable yarding equipment to a landing accessed by a system or temporary road. At landings, trees would be processed into logs and transported to a mill as commercial wood products. Thinned trees less than 10 inches DBH and brush may also be removed to a landing, chipped, masticated, or cut and piled in place. If activity-generated fuels such as tops or limbs left behind create undesirable fuel loading, this debris would be piled for burning or scattered to reduce fuel concentrations. When pile burning, fire may be allowed to creep from piles as low intensity

ground fire, if fuel and weather conditions permit, to restore fire as a natural disturbance and consume additional fine fuels. Management activities would be designed to blend into the surrounding landscape, with irregular edges and landings and temporary road entrances blocked and disguised after use.

When thinning in riparian reserves for forest health, effective stream shade would be maintained by the use of site-specific no-cut and equipment exclusion zones. Entry into riparian reserves is only be proposed where field review has shown that treatment would be necessary to maintain and restore Aquatic Conservation Strategy objectives.

In order to add stream habitat structure and complexity within riparian reserves, logs or whole trees may be directionally felled toward or mechanically placed within stream channels where large woody debris is limited in streams. Trees would be tipped or felled by mechanical equipment or manually felled with chainsaws. Trees selected for tipping or felling into stream channels would not significantly reduce stream shade if cut or tipped, or reduce the integrity and stability of stream banks.

Early Seral

To promote forest health and growth and enhance habitat quality for deer and elk, early seral, young planted conifer stands would be variable density thinned by mastication or manual felling by chainsaw. Conifers less than 10 inches DBH would be thinned. To promote vegetation diversity, hardwoods would be included in leave tree spacing. Cut trees or brush would be manually piled for burning, chipping, or scattered where resulting fuel loading would not be excessive to kill residual trees if burned. When pile burning, fire may be allowed to creep from piles as low intensity ground fire, if fuel and weather conditions permit, to restore fire as a natural disturbance and consume additional fine fuels. When treating early seral stands in riparian reserves, effective stream shade would be maintained by use of site-specific no-cut and equipment exclusion zones.



Photo 1. Tree mortality and high fuel loading within mid-seral stand.

Photo 2. Mastication of early seral habitat in a prior project for shaded fuel break.



Meadow Enhancement

To enhance dry and wet meadow vegetation conditions and the function of wildlife and rare plant habitat, young conifer encroachment would be manually thinned with chainsaws with resulting activity-generated fuels manually piled for later burning, chipped, or scattered in order to meet desired surface fuel concentrations. When pile burning, fire may be allowed to creep within the meadow as low intensity ground fire, if fuel and weather conditions permit, to restore fire as a natural disturbance, consume additional fine fuels, and encourage regeneration of grasses and forbs. Younger, smaller trees up to 300 feet from meadow margins would be manually or mechanically thinned to create an open woodland of larger, older conifer and hardwood trees at a wide spacing to improve tree health, resilience to fire or insects and disease, and reduce potential fire severity within meadows. To reduce down-cutting of streams or sheet erosion within wet meadows, erosion control structures would be installed manually to restore vegetative cover and reduce potential sediment input to waterways. No heavy equipment would be used in wet meadows. Where roads are passing through or near wet meadows and affecting water table surfaces, road drainage structures would be reconstructed to provide more natural hydrologic function in wet meadows. Vegetation conditions within meadows would be periodically assessed following initial treatment and recurring treatment scheduled to maintain effectiveness for wildlife and plant habitat.

Photo 3. Channel down-cutting and surface erosion due to road culvert crossing and unauthorized Off Highway Vehicle use through a wet meadow off the 41N06 road.



Oak Woodland Enhancement

Encroaching young conifers, small oaks, and brush within oak woodland areas would be manually cut with chainsaws or masticated to maintain and enhance health of oak woodland areas and improve deer and elk habitat quality. Conifers less than 10 inches DBH would be cut and small oaks less than 6 inches DBH would be variably thinned in order to restore open woodland conditions. Activity-generated fuels would be manually piled or scattered where resulting fuel loading would not be excessive to kill residual trees if burned. When pile burning, fire may be allowed to creep from piles as low intensity ground fire, if fuel and weather conditions permit, to restore fire as a natural disturbance, consume additional fine fuels, and encourage hardwood sprouting. Vegetation conditions within oak woodlands would be periodically assessed following initial treatment and recurring treatment scheduled to maintain effectiveness for wildlife and plant habitat. When treating oak woodland areas in riparian reserve, effective stream shade would be maintain by use of site-specific no-cut and equipment exclusion zones.

Photo 4. Oak woodland habitat with small conifer encroachment and mature brush.



Abandoned Mineland Reclamation

Abandoned mine sites will be evaluated for environmental and safety hazards and mitigated subject to State Occupational Health & Safety and Historic Preservation Office standards. Open mine tunnels or pits would be blocked, gated, or otherwise closed for safety. Mining related debris would be removed from the site in compliance with applicable law, policy, and regulation including compliance with the National Historic Preservation Act. Remaining mining surface features such as tailing piles, dams, or unauthorized access roads would be removed, re-contoured, or hydrologically stabilized to return the site to a condition where the site is unlikely to contribute future sediment to waterways.

Photo 5. Tailings pile and erosion at an abandoned mine site.



Road Sediment Source Reduction

To reduce human caused sediment discharge to waterways within the project area, in order to comply with water quality regulation (North Coast Regional Water Quality Control Board, 2015 Waiver; Scott River TMDL, and the North Coast Basin Plan), active and potential human caused sediment source sites have been inventoried. All system roads were inventoried during the summer of 2016. In addition to system roads, non-system roads and non-road related sites such as old mines and skid trails are also being surveyed. Sites will be prioritized for treatment based on risk to water quality. Sites that have been selected for treatment through consultation with the Regional Water Board would be scheduled for treatment.

Treatment of high use system roads would include ditch clearing, installation of additional ditch relief culverts, stream crossing culvert replacement, road surface out-sloping, road surface hardening, and critical dip placement. Replaced or redesigned structures would be designed for 100-year peak storm flow. On Maintenance Level 1 roads, unauthorized routes, and mine sites, treatment would include hydrologic stabilization through the removal of fill

from stream crossings, outslipping of road surfaces (and localized re-contouring as needed), water bar placement, and the stabilization of over-steepened outboard road fills.

In addition to legacy sediment site treatment as discussed above, where stream crossing structures are impeding for aquatic organism passage, they would be reconstructed and redesigned to remove barriers and enhance connectivity for aquatic species.

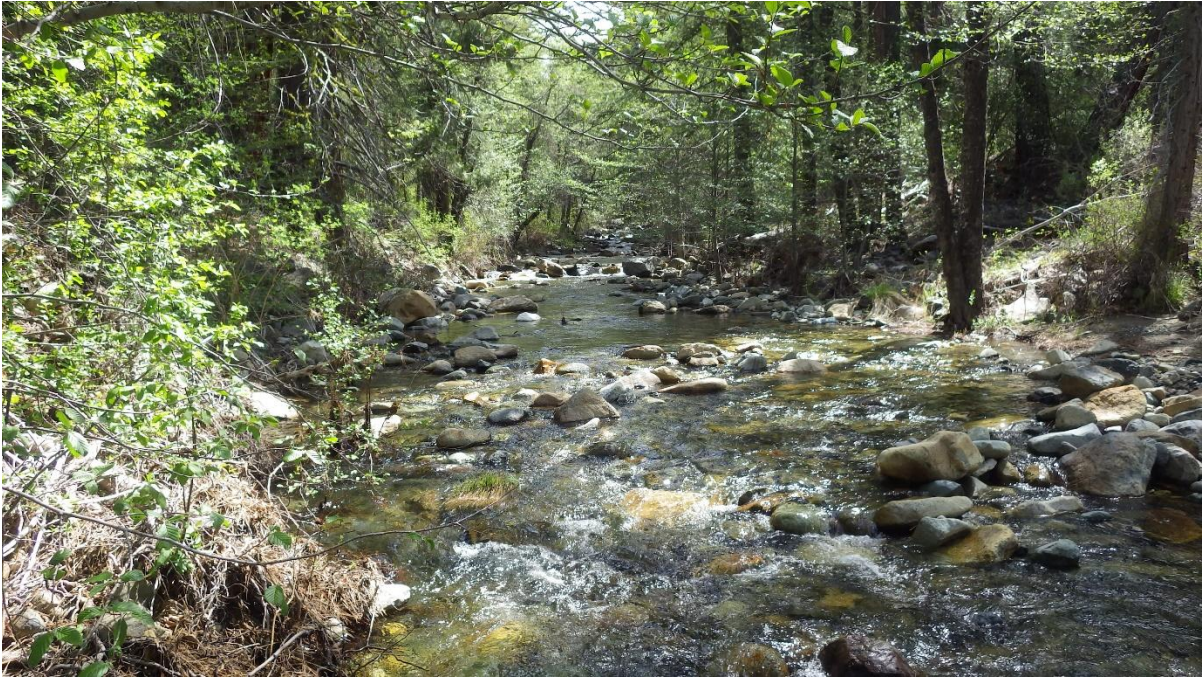
Photo 6. Partially failed stream crossing on system road 40N76 exhibiting active erosion of remaining fill.



Large Woody Debris Additions to Streams

Large pieces of wood in stream channels provide cover, substrate, and habitat structure critical for fulfilling life history requirements of aquatic- and riparian-dependent species. In addition, large woody debris provide critical fluvial geomorphic benefits which support healthy water quality. Surveys have shown large woody debris important for habitat is lacking in certain stream segments within the project area. To enhance stream habitat structure and complexity within riparian reserves, trees will be thinned in riparian reserve in certain areas and logs or whole trees may be directionally felled toward or mechanically placed within stream channels where large woody debris is limited in streams. Trees would be tipped or felled by mechanical equipment or manually felled with chainsaws. Trees for tipping or felling into stream channels would be selected so that stream shade will not be reduce or the stability of stream banks compromised.

Photo 7: Project Area stream devoid of Large Woody Debris due to historic mining.



Access and Administration

Road System Changes

On National Forest lands, roads are classified into five Maintenance Levels: 1, 2, 3, 4, and 5. Maintenance levels define the level of service provided by, and maintenance required for, a specific road and must be consistent with road management objectives. The East Fork Scott Project area includes roads that are Maintenance Level 1, 2, and 3. Maintenance Level 1 roads are those in storage and closed to motor vehicle use, but may be available for non-motorized use. Emphasis is given to maintaining stable and natural drainage functions which minimize erosion and sedimentation, therefore culverts and fills may be removed. Maintenance Level 2 roads are maintained for high-clearance vehicles. These roads see light traffic and require very low travel speeds. Dips are the preferred drainage treatments. They avoid the use of culverts and bridges where possible. Surface smoothness is not a consideration and they may be subject to seasonal closure. Maintenance Level 3 roads are maintained for passage by standard passenger cars. They are typically single lane roads with turnouts and provide drainage via a combination of dips and ditch relief culverts.

Access for this project would be mainly accomplished by use of roads on the National Forest Transportation System. An interdisciplinary risk and benefit travel analysis process was conducted for all system roads within the project area. Recommendations were developed by interdisciplinary team members considering the risks and values of each road.

From this assessment, it was found that certain roads within the East Fork Scott Project were at high risk of harming resources, particularly water quality. These roads exhibited frequent legacy sediment sites and were not in compliance with the total maximum daily loads. In some cases, the most efficient, cost effective, or long term treatment of legacy sediment sites is to decommission or downgrade a road's maintenance level.

The recommendations developed through the travel analysis process are proposed as actions through the East Fork Scott Project. A summary of the proposed actions derived from recommendations can be seen in Table 5 below. These actions can also be viewed spatially on the map of travel management recommendations that is available on the project webpage (<https://www.fs.usda.gov/project/?project=50878>).

Table 4. East Fork Scott Travel Analysis Process Summary

Primary Recommendation	Miles	Percent of Total
No action to road is recommended	75.4	74%
Upgrade to Maintenance Level 2	9.5	9%
Add unauthorized route to System	0.5	<0.5%
*Downgrade to Maintenance Level 1	11.2	11%
Decommission and hydrologically stabilize	2.3	2%
**Administrative changes	2.8	3%
***Relocation of problem segments	1.7	2%
Total	103.4	

**Roads downgraded to Maintenance Level 1 would be hydrologically stabilized and gated as needed.*

***Mapping error corrections and other errata*

****Three existing segments (part of 41N06A, part of 41N07, and part of 41N28) would be hydrologically stabilized and recontoured. New routes for 41N07 and 41N06A are on existing road beds primarily outside of Riparian Reserves. The proposed re-route of 41N28 would involve building a new, less steep road segment much further from a nearby watercourse. There would be no substantial net loss or gain to the existing road system because of the relocation of problem segments.*

The proposed changes to the road system have been identified as needed for administration, utilization, and protection of National Forest System (NFS) lands as per 36 CFR 212.5(b)(1).

Some reconstruction or maintenance activities on system roads would be needed for project implementation, including brushing, grading, or surface replacement, in order to bring road conditions up to meet the requirements specified in the road management objective for an individual road. The project activities described in the proposed action require temporary access along 10 miles of existing non-Forest Transportation System road beds within the project area. An additional 2 miles of new temporary roadbed would be needed in order to implement the project. Existing landings along existing roads would be used wherever possible, though it is anticipated that about 25 new temporary landings of 0.5 acre size would be needed for implementation of the proposed action. Temporary roads and landings would be closed and hydrologically stabilized upon completion of project activities in order to reduce potential sediment input to waterways.

Development of water sources would be needed to implement the proposed actions. Water source development may include installation or maintenance of access ramps and filling pools within intermittent or perennial streams, or alternatively installation of filling pipes or water storage tanks to reduce impacts from vehicle access and drafting.

Photo 8. Erosion in through-cut of Maintenance Level 2 road 40N68 not meeting



maintenance standards.

Hazard Tree and Fuel Reduction

Fuel Reduction

Firefighter and public safety would be improved by reducing fuel concentrations on either side of public access routes and on public land adjacent to private land with residences. Conifers less than 10 inches DBH, hardwood clusters, and brush would be thinned to a variable spacing by manual felling with chainsaws, mechanical felling with heavy equipment, chipping, or by mastication. Larger trees may be thinned as well where recommended by a fuels specialist to reduce potential for crown fire along roads and adjacent to private land. These larger trees may be manually or mechanically felled and heavy equipment may be used to move them to a landing location in order to reduce fuel concentrations and to make them available for firewood or to be processed and transported to a mill as commercial round wood products. Remaining trees would be limbed to 7 feet in height to further reduce ladder fuels. Both existing downed and activity-generated fuels would be treated by manual piling for later burning or by scattering where resulting fuel loading would not kill residual trees. When pile burning, fire may be allowed to creep from piles as low intensity ground fire, if fuel and weather conditions permit, to restore fire as a

natural disturbance and consume additional fine fuels. Roads, streams, hand lines, or other natural breaks would be used to limit spread of low intensity fire. In order to reduce fuels and potential fire severity across the landscape, vegetation management activities to meet other objectives of the project would include a plan for fuel reduction, including piling, scattering, chipping, masticating, or removal using mechanical equipment to skid or cable yard potential fuels to a landing. Fuel concentrations would be periodically assessed following initial treatment and recurring treatment scheduled to maintain effectiveness for public safety. When thinning in riparian reserves for fuels reduction, effective stream shade would be maintained by the use of site-specific no-cut zones.

Photo 9. Heavy fuel loading along the 40N08 road near Kangaroo Creek.



Photo 10: Ponderosa pine stands with understory growth leading to high fire potential directly adjacent to private property in Kangaroo Creek.



Hazard Tree Reduction

Dead, dying and weakened trees that pose a hazard to public safety near campgrounds, trailheads, dispersed campsites, and along major recreational access routes will be evaluated according to the Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (2012). Trees identified as moderate to high hazard potential would be designated for mitigation by mechanical or manual felling. To prevent accumulation of fuels where hazard trees are felled, these trees would be moved by mechanical equipment to a landing location and either made available as firewood or processed and removed as commercial round wood products. Activity-generated fuels such as tops or limbs would be piled for burning, chipped, or scattered to reduce fuel concentrations. Hazard trees would be periodically assessed following initial treatment and recurring treatment scheduled to maintain effectiveness for public safety. Where hazard trees occur in riparian reserves, effective stream shade would be assessed and site-specific no-cut and equipment exclusion zones would be determined to maintain stream shade for water quality and reduce potential for sediment from entering waterways. Hazard trees suitable for large woody debris additions to streams may be directionally felled or tipped where they would not significantly reduce stream shade if cut or tipped, or reduce integrity and stability of stream banks.

Photo 11. Hazard trees along the 40N76 road.



Appendix A: Vicinity and Project Area Map

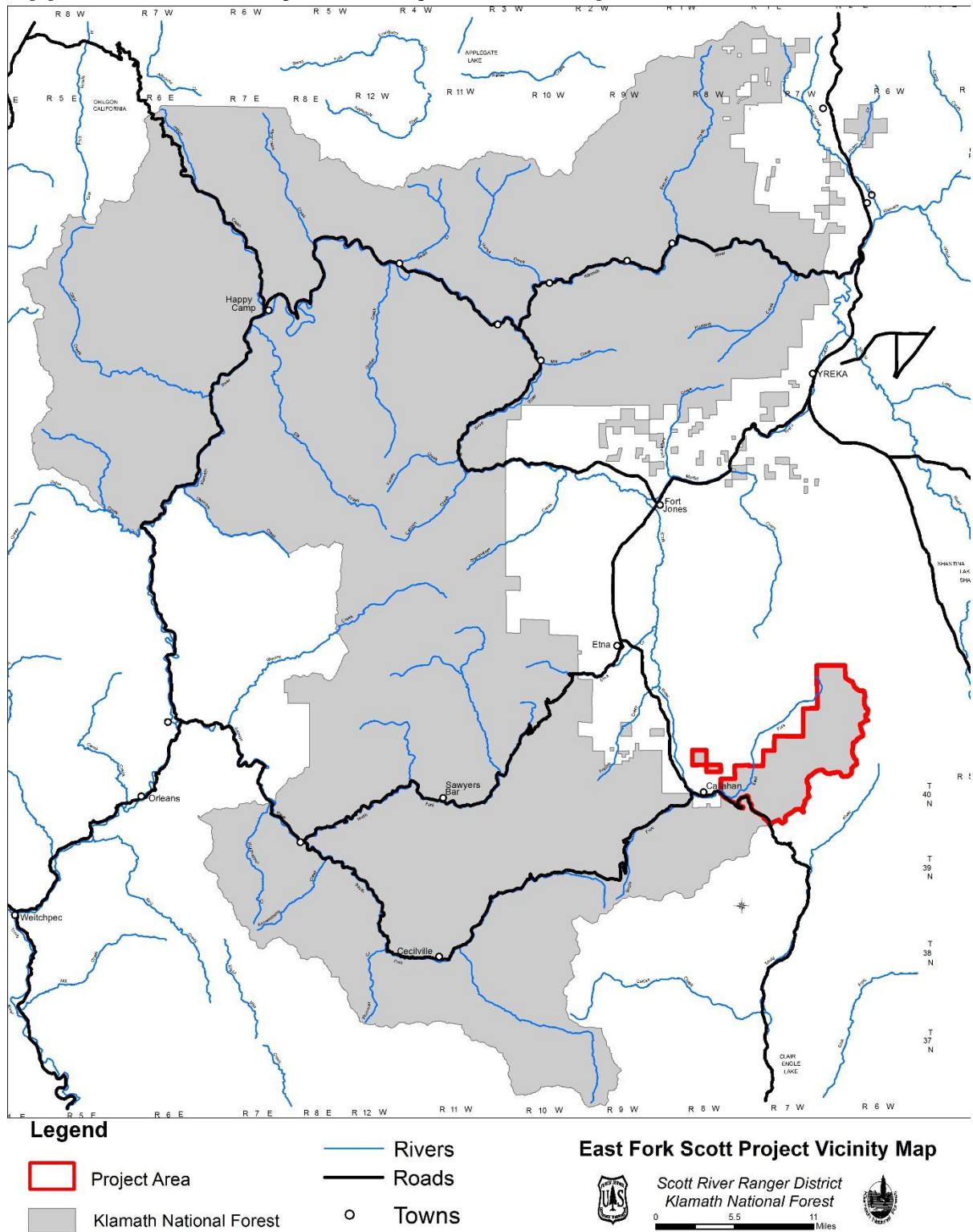


Figure 1. Vicinity map and Project Area Boundary